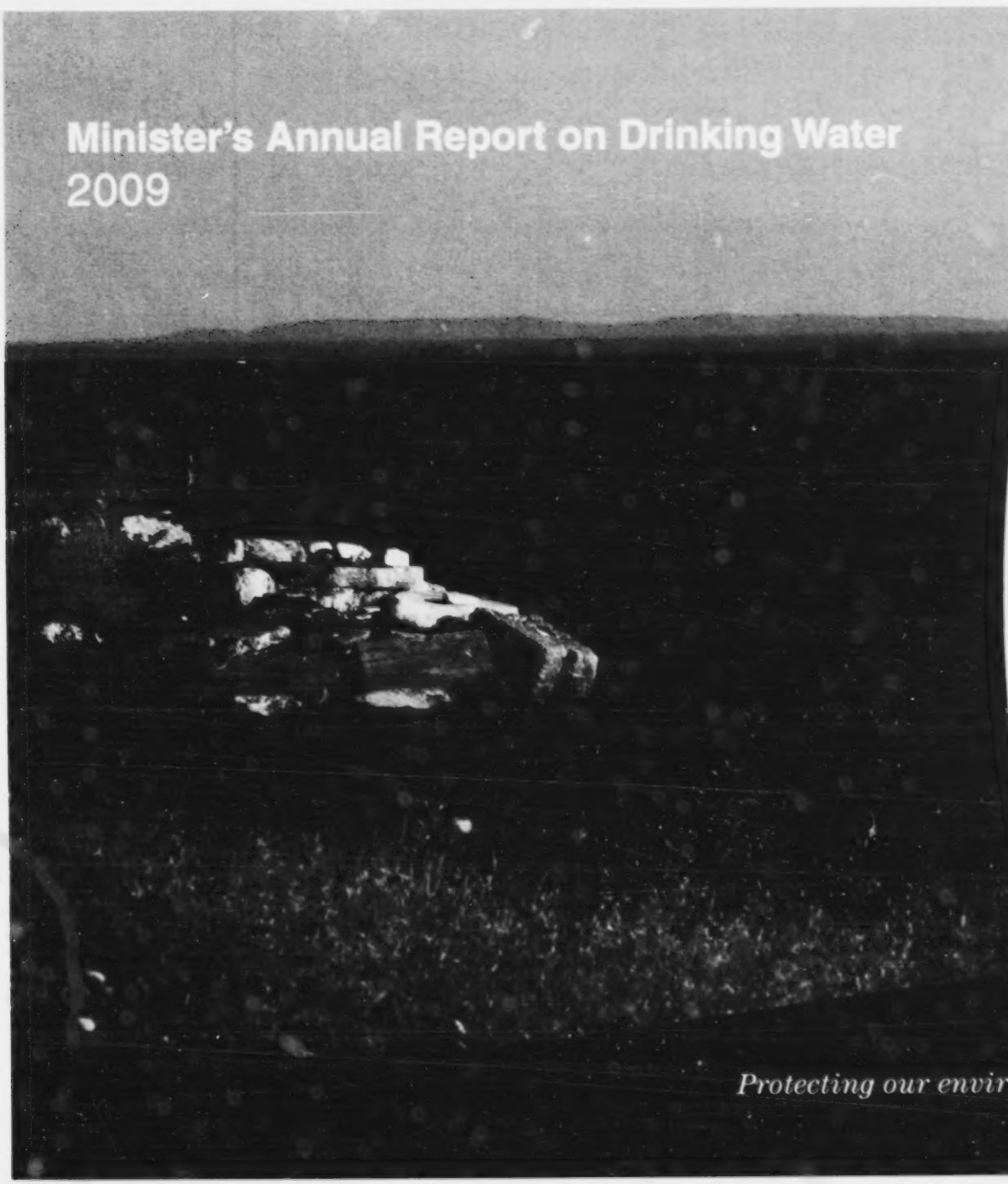
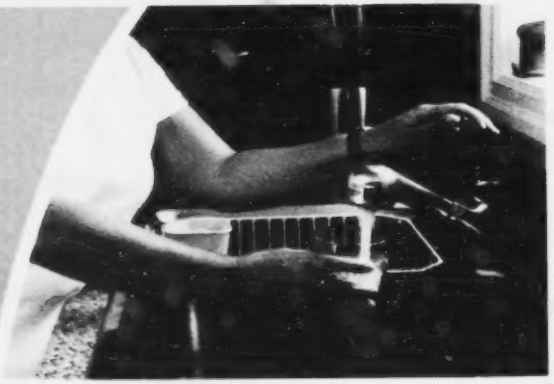
Minister's Annual Report on Drinking Water
2009





Protecting our environment.

Ontario

Welcome to my third annual report on drinking water that describes the initiatives and activities taken to protect drinking water from July 2008 to June 2009. It also fulfils my obligation, under the Safe Drinking Water Act, to report annually on drinking water issues.

My ministry continues to champion tough legislation, standards, training and inspection programs and strengthen source water protection. I look forward to meeting with the people of Ontario who are passionate about protecting our drinking water. I am very interested in hearing your thoughts about the subjects discussed in this report. Please contact me at **drinking.water@ontario.ca**.

Cette publication est également disponible en français.
© 2009, Queen's Printer for Ontario
ISSN 1920-6682 (Print)
PIBS 6973e

Minister's Message

My ministry continues to press ahead with an aggressive agenda to protect Ontario's drinking water.

We have tough standards in place. We have the testing and protocols for taking fast action to resolve drinking water quality problems and there are rigorous requirements for the training and certification of people that operate drinking water systems. Our ongoing work on these issues is critical to the protection of our water resources.

Strong legislation is at the core of our approach to drinking water safety. Our primary focus is prevention, which is bringing communities together to protect the sources of their drinking water. Under the Clean Water Act, the 19 source water protection committees have developed and submitted their terms of reference and are already working on the science to develop their assessment reports.

The good news is the already high overall compliance figure continues to increase. The latest numbers (for 2007-2008) were released earlier this year in the annual report by Ontario's Chief Drinking Water Inspector. The report showed continued improvement in the delivery of safe, clean, drinking water in Ontario. I am pleased to report that 99.85 per cent of all drinking water tests reported by municipal residential drinking water systems met provincial drinking water standards.

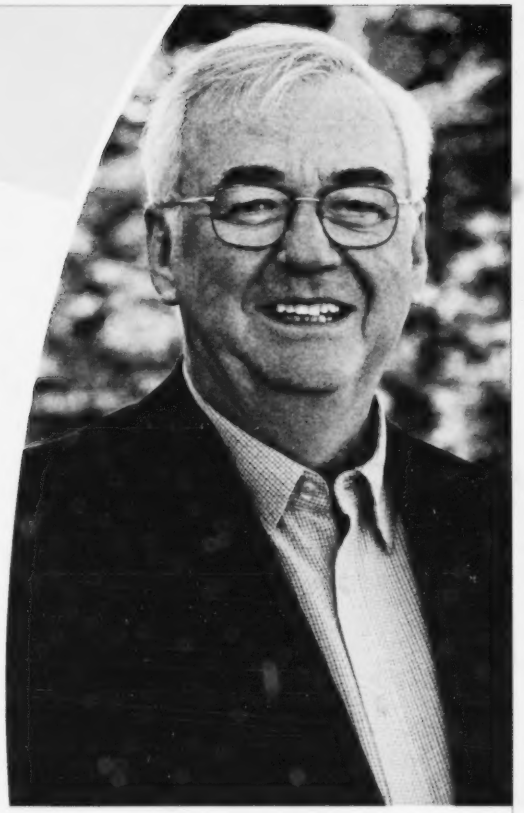
There's a simple reason why the numbers keep getting better: along with our partners, we remain ever vigilant in further protecting Ontario's drinking water.

This includes the drinking water owners and operators continually optimizing their systems, resulting in higher quality drinking water going out of the plant and into the distribution system to each and every household. Our approach to providing safeguards to help protect drinking water is working. So, while it may not be grabbing the headlines, it is fundamentally what protecting human health and the environment is all about.

And I'm proud of the hard, but often less dramatic work to implement these policy initiatives — both by my own ministry staff and by front-line water managers.

Municipal licensing is another area where we are strengthening drinking water protection. At this point, implementation has begun and I am pleased to report that we have issued the first licences to municipalities this past spring.

It has taken sustained effort over the past four years to get to where we are today with the licensing program.



The Honourable John Gerretsen, Minister of the Environment.

MINISTER'S MESSAGE

Thanks to our many partners, we have Canada's first comprehensive licensing program. I really think we're on the right track with a single licence that will include a drinking water works permit, an operational plan, an accredited operating authority, a financial plan and a permit to take water.

The quality management system aspects of the licence will ensure that everyone, including the public, is aware of who is responsible for what part of the drinking water system.

It ensures that quality management is the responsibility of the people who manage the drinking water system — it is not a ministry program dictating how the system must be managed. The knowledgeable staff within the organization will develop practices that make sense for their drinking water system.

And the independent auditor confirms that there are management procedures in place.

Ontario's Lead Action Plan is another success story. It is an excellent demonstration of our drinking water safety net in action.

We took decisive action to respond to an emerging challenge in this case, elevated lead levels that were found in drinking water in schools, private schools, day nurseries and homes throughout the province in the spring of 2007. Today, it's mandatory to test for lead in drinking water throughout the province. And, when higher than acceptable levels are detected, certain actions are required.

I acknowledge that the work of protecting our water, from source-to-tap and back to source again, is ongoing. We continue to strive to have the best-protected water in North America, if not the world. We look forward to continuing this work and strengthening our safety net approach to drinking water protection.

I hope you enjoy reading this report.

The Honourable John Gerretsen

Minister of the Environment
Government of Ontario
October 2009

Contents

- Key Achievements from July 2008 to June 2009 4
- Drinking Water Performance Results 6
- Safeguarding Ontario's Drinking Water 8
- Emerging Drinking Water Issues 26
- Highlights of the Broader Water Agenda 30

Key Achievements from July 2008 to June 2009

DRINKING WATER PROTECTION

Clean Water Act and Source Protection Committees

Protecting our drinking water requires science, partnerships and community engagement. As required by the Clean Water Act, Ontario's 19 source water protection committees have all submitted terms of reference for their source protection areas to me, for approval. Work is already underway to develop the science-based assessment reports using the technical rules that were released in November 2008.

On June 25, 2009, my ministry posted a discussion paper on the Environmental Bill of Rights registry, on the requirements for the content and preparation of source protection plans. Through the Ontario Drinking Water Stewardship Program, we are providing $7 million in each of the next two years to individuals, communities and organizations to take early action to protect their local municipal drinking water sources.

Mandatory Municipal Drinking Water Licensing Program Update

As part of my ministry's safety net to protect our drinking water, owners of municipal residential drinking water systems are working toward meeting rigorous new requirements before we issue licences to operate their systems. As of June 30, 2009, we received licence applications from 248 municipal residential drinking water system owners, including the 24 largest municipalities, and have issued 20 licences. The ministry will receive about 390 more applications from medium- and small-sized municipalities over the next year.

Small Drinking Water System Oversight Moves to Ministry of Health and Long-Term Care

After extensive consultations with drinking water experts, system owners and operators and the public, regulatory oversight for small drinking water systems was successfully transferred to the Health Protection and Promotion Act, under the Ministry of Health and Long-Term Care, on December 1, 2008. Public health inspectors, from local boards of health, began carrying out risk assessments to establish specific requirements for small drinking water systems, regulated under the Health Protection and Promotion Act and its regulations, and to help provide safe drinking water. My ministry's specialized laboratory inspectors will continue to inspect licensed laboratories that perform testing of drinking water samples from these small drinking water systems.

Walkerton Clean Water Centre

On October 17, 2008, the Walkerton Clean Water Centre held the groundbreaking ceremony for a new permanent home of this world-class institute in Walkerton. The facility is expected to open in fall 2009 and will have many innovative features including being built to conform to the Canada Green Building Council's Leadership in Energy and Environmental Design (LEED) "Gold" certification standards. The new amenities, including a Technology Demonstration Facility, will increase the capacity to deliver training and conduct research for drinking water system owners and operators across Ontario. Since October 2005, the Centre has offered this training to more than 17,000 water professionals.

Public Reporting

On June 24, 2009, my ministry released the fourth Chief Drinking Water Inspector's Annual Report. This report describes the state of Ontario's drinking water and what my ministry did to protect it in 2007-08.

On September 18, 2008, I tabled the 2008 Minister's Annual Report on Drinking Water which covers my ministry's activities and results between May 2007 and July 2008.

These public reports, and more, are available on our Drinking Water Ontario website at **www.ontario.ca/drinkingwater**.

GREAT LAKES

Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem

We continued to fulfill our commitments under this agreement to reduce pollutants and protect the health and well-being of these vulnerable water resources. In consultation with stakeholders and Aboriginal communities, we are developing a common direction and actions to protect the Great Lakes.

Great Lakes and St. Lawrence Cities Initiative

On July 17, 2008, Ontario signed a Memorandum of Cooperation with this binational coalition of more than 50 mayors and other municipal officials from Canada and the United States. The memorandum outlines the areas of cooperation among the parties in communications and engagement in support of the Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem, and to consider ongoing communications and engagement beyond 2010.

Great Lakes Summit

At the May 5, 2009 Great Lakes 2009 Summit between Mayors and Ministers, Ontario agreed to work with the Great Lakes and St. Lawrence Cities Initiative in inviting the federal government to join them in forming a tripartite Great Lakes table. The Ministries of Natural Resources and Environment agreed to fund an economic benefits study that will quantify the return on investment we can expect to achieve on the Great Lakes for restoring and protecting the Great Lakes ecosystem.

MONITORING WATER QUALITY

Water Quality in Ontario 2008 Report

On April 20, 2009, the province released the Water Quality in Ontario 2008 Report. This report provides information about Ontario's water quality conditions and trends. It explores monitoring topics in detail: phosphorus enrichment, acid rain, toxic substances and climate change.

The monitoring results showcase the progress that Ontario has made in restoring and protecting water resources. They also remind us that we need to maintain continued vigilance, particularly in light of climate change. You can read the report on our website at **www.ene.gov.on.ca/publications/6926e.pdf**.

LAKE SIMCOE

Lake Simcoe Protection Act and Plan

The Lake Simcoe Protection Act received Royal Assent on December 10, 2008 and enshrines protection for this vulnerable water resource in law. From January to March 2009, we completed consultation on a draft Lake Simcoe Protection Plan. Under the act, the final plan was established and released on June 2, 2009, and is the most comprehensive watershed-based legislated plan in Canada. More information on this act and plan can be found on the Ministry website at **www.ene.gov.on.ca/en/water/lakesimcoe/index.php**.

Lake Simcoe Farm Stewardship Initiative

My ministry made available $750,000 in the 2008-09 fiscal year to help farmers implement on-farm stewardship actions in the Lake Simcoe watershed. My government combined this provincial initiative with the federal-provincial Environmental Farm Plan and related cost share programs. This collective funding helped farmers contribute to the protection and restoration of the lake's health by covering a portion of their costs for initiatives such as nutrient management planning and restricting livestock access to watercourses in and around Lake Simcoe.

PROTECTION FROM TOXICS

Toxics Reduction Act

The Toxics Reduction Act received Royal Assent on June 5, 2009. This act and the regulations will help protect human health and the environment by requiring certain industrial sectors to prepare toxic substance reduction plans. These measures will contribute to a greener and healthier environment for our families and communities and a higher quality of life for all of us.

Cosmetic Pesticides Ban

The Cosmetics Pesticides Ban Act came into force on April 22, 2009, the same day a new regulation, Regulation 63/09, under the Pesticides Act was in effect. The provincewide ban prohibits the use and sale of pesticides for cosmetic purposes and includes many herbicides, fungicides and insecticides.

INVESTING IN THE FUTURE

Building Canada Fund

Communities Component

In June 2009, my government and the government of Canada announced a joint investment of $408 million for 183 infrastructure projects in rural and small communities across Ontario. This includes more than $36 million for water projects in 22 communities and is in addition to more than $54 million for water projects in 35 communities announced in February 2009 under the same program.

Major Infrastructure Component

In June 2009, my government and the government of Canada also committed up to $140.5 million in funding to upgrade Ontario's six remaining wastewater treatment plants that currently use primary treatment near the Great Lakes. This wastewater treatment improvement project will help Ontario and Canada meet commitments under federal-provincial, as well as international water quality agreements.

Helping Small Communities with Water Costs

In 2007, my government committed to providing $40 million over five years in operating and capital assistance to municipalities and Local Services Boards with public drinking water systems serving small populations. A total of $20 million in operating funding will be provided to 166 communities through the first two phases of this program.

Infrastructure Stimulus Fund

On June 5, 2009, my government and the government of Canada announced a total of $1.85 billion in funding to support approximately 1,200 construction-ready infrastructure projects. This includes more than $274 million for 117 water projects in communities across the province.

Infrastructure Ontario's Loan Program

My government has provided municipalities with financial assistance for their water infrastructure through Infrastructure Ontario's Loan program. Since this program's inception, my government has executed over $684 million in loan agreements for water projects. From July 2008 to July 2009, my government committed $158 million in affordable low-interest loans through Infrastructure Ontario's Loan Program to help seven municipalities address their drinking water infrastructure priorities.

PARTNERSHIPS

Collaborations with Other Countries

We signed agreements to share knowledge, technologies, experiences and best practices on climate change, source water protection and restoring the health of our lakes with:

- **The Chinese Province of Jiangsu.** On October 30, 2008, my government signed an environmental memorandum of understanding that builds on the ongoing friendship agreement between our two provinces.
- **The Netherlands.** On November 26, 2008, I signed a memorandum of understanding with the Netherlands — the first of its kind between Ontario and a national government.

TARGETED ENFORCEMENT

Environmental Penalties

If you spill, you pay. Regulated industries responsible for unlawful spills and emissions that pollute Ontario's water and land could pay up to $100,000 per day per violation. As of September 1, 2008, facilities regulated under Spills Prevention and Contingency Plans (O. Reg. 224/07) also had to develop and implement spill prevention and contingency plans.

Drinking Water Performance Results

This section provides a high level overview of the performance of Ontario's drinking water systems. It provides key statistics on drinking water quality, results from inspections undertaken on systems and licensed laboratories that perform drinking water testing, and information on orders and convictions to systems providing drinking water.

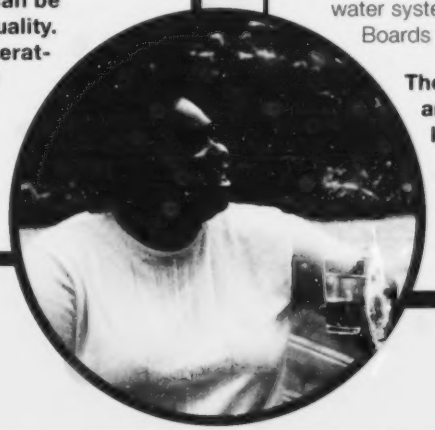
My ministry carefully tracks the data we are collecting to help make sure Ontario's drinking water is among the best protected in the world. The performance results presented cover the period from April 1, 2007 to March 31, 2008, as reported in the Chief Drinking Water Inspector's Annual Report 2007-2008 released on June 24, 2009.

Drinking Water Quality

High Drinking Water Quality Results in Ontario During 2007-08

- **99.85% of drinking water tests** of municipal residential drinking water systems, which serve more than 80% of Ontario's population, met our strict drinking water quality standards
- **99.40% of drinking water tests** for non-municipal year-round residential drinking water systems met our strict drinking water quality standards
- **99.39% of drinking water tests** for systems that serve designated facilities met our strict drinking water quality standards

When you turn the tap on, you can be confident the water is of high quality. Ontario requires owners and operating authorities of municipal and regulated non-municipal drinking water systems to regularly sample and test their water to make sure it meets rigorous, health-based standards.



Drinking Water System Inspections

Key Findings of Our Drinking Water System Inspections Program in 2007-08

- All 697 municipal residential drinking water systems were inspected
- 50% of municipal residential drinking water systems achieved inspection ratings of 100%
- 95% of municipal residential drinking water systems achieved inspection ratings over 90%
- 14 orders were issued to 14 municipal residential drinking water systems; 11 of these were issued during inspections
- 53 orders were issued to 43 non-municipal year-round residential drinking water systems and systems serving designated facilities
- Three orders were issued to three drinking water systems operated by Local Services Boards during nine inspections

These inspections motivate owners and operators to comply with the law. They are an important tool in our safety net's multifaceted compliance improvement toolkit.

Licensed Laboratory Inspections

Key Findings of Inspections at Laboratories Licensed to Perform Drinking Water Testing in 2007-08

- 53 unannounced inspections, 56 announced inspections and five responsive inspections at the 56 laboratories licensed to perform drinking water testing
- Three orders issued to three licensed laboratories

We will maintain our leadership role in drinking water protection by continuing to support comprehensive inspection programs for laboratories licensed to perform drinking water testing.

For details on performance of drinking water systems and laboratories licensed to perform drinking water testing, please go to the Chief Drinking Water Inspector's Annual Report 2007-2008 at ***www.ontario.ca/drinkingwater****.*

Convictions and Fines

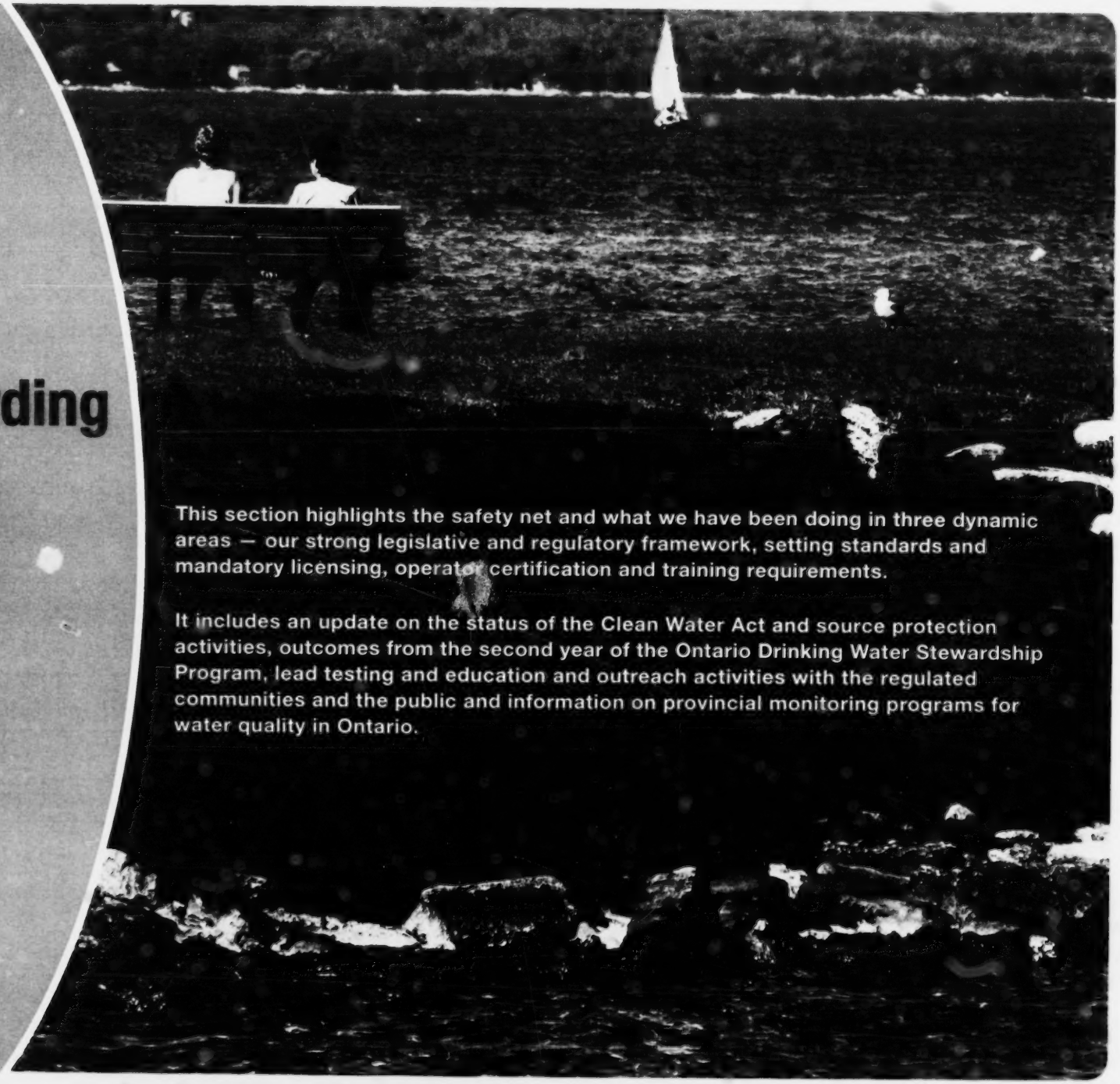
Highlights of Convictions and Fines for Drinking Water Prosecutions in 2007-08

- There were a total of 19 cases with convictions of 21 drinking water systems, resulting in fines totalling $214,900
- There were 11* cases with convictions involving 13 municipal residential drinking water systems, resulting in fines totalling $157,000
- There were four cases with convictions involving four non-municipal year-round residential drinking water systems, resulting in fines totalling $44,000
- There were four cases with convictions involving four systems serving designated facilities, resulting in fines totalling $13,900
- There were no convictions involving laboratories licensed to perform drinking water testing

Investigations and prosecutions are another important tool in our safety net's multifaceted compliance improvement toolkit. We draw upon these tools when owners, operating authorities or operators do not comply with the law.

*Includes two cases with convictions against three individual operators and one conviction against an operating authority with fines totalling $22,500.

Safeguarding Ontario's Drinking Water



This section highlights the safety net and what we have been doing in three dynamic areas — our strong legislative and regulatory framework, setting standards and mandatory licensing, operator certification and training requirements.

It includes an update on the status of the Clean Water Act and source protection activities, outcomes from the second year of the Ontario Drinking Water Stewardship Program, lead testing and education and outreach activities with the regulated communities and the public and information on provincial monitoring programs for water quality in Ontario.

We have taken a leadership role in establishing and implementing a safety net of inter-related activities that help maintain the provision of high quality drinking water in Ontario. This drinking water safety net continues to build on that of previous years, to provide an even stronger foundation for effective drinking water protection.

Safety Net Foundation Strengthened

This foundation includes:

- Source-to-tap focus
- Strong legislative and regulatory framework
- Health-based standards for drinking water
- Regular and reliable testing
- Swift, strong action on adverse water quality incidents
- Mandatory licensing, operator certification and training requirements
- Multifaceted compliance improvement toolkit
- Partnership, transparency and public engagement.

You can get more detailed information on Ontario's drinking water safety net as well as information on the performance of drinking water systems and laboratories licensed to perform drinking water testing from the Chief Drinking Water Inspector's Annual Report 2007-2008 at **www.ontario.ca/drinkingwater**.

To help strengthen our safety net, my ministry is reaching out to the many people in Ontario with whom we share a vision of safe, sustainable drinking water. We are working closely with dedicated and skilled individuals in other provincial ministries and agencies, the federal government, municipalities, conservation authorities, Aboriginal communities, farming community associations, environmental organizations, grassroots community groups and the public — because everyone has a stake in protecting our drinking water.

Building a Shared Vision and Values to Safeguard Ontario's Source Water

As each source protection committee develops its source protection plan, it is building consumer confidence and promoting a shared vision of how its community will protect its drinking water sources by consulting across the watershed during the preparation of three key milestones:

1. **Terms of reference** that outline the steps to develop and implement the plan
2. **The assessment report** that identifies and categorizes threats to source water
3. **The source protection plan** that addresses these threats to source water.

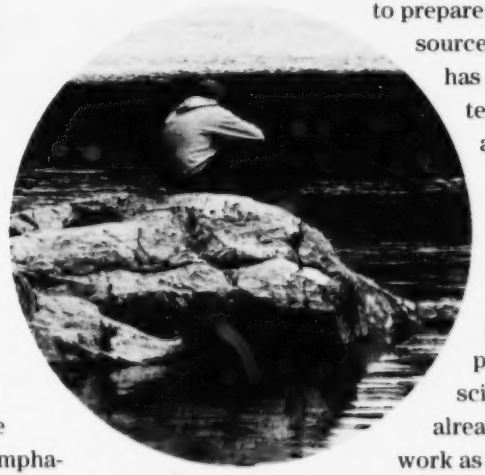
A Strong Legislative and Regulatory Framework

Ontario's pioneering legislation and a strong regulatory framework have been put in place, including the Safe Drinking Water Act and the Clean Water Act. For all of us, these measures can reinforce confidence that our drinking water is safe and of high quality, from source-to-tap.

How the Clean Water Act is Protecting Our Source Water

Source Protection Committees

My ministry continues to play an important role in protecting drinking water sources in Ontario. The Clean Water Act is ground breaking, comprehensive legislation established with an emphasis on prevention. The source protection committees mandated by this act are developing plans, with the involvement of local communities, to protect their own sources of drinking water. This regional involvement is a real shift in the way we are protecting drinking water sources in this province.



Over the past year, Ontario's 19 source water protection committees have worked diligently. All met the January 2009 deadline to submit their terms of reference to me for Ontario's 40 source protection areas.

The terms of reference outlined the steps needed to prepare an assessment report and the source protection plan. My ministry has completed the review of these terms of reference and all are approved.

These committees are now completing the groundwork necessary to support and inform their science- and watershed-based source protection plans. They are reviewing the scientific information they have already gathered, undertaking new work as required, meeting the regulatory requirements and following the director's technical rules for their assessment reports. These rules allow the committees to consider local condi-

tions when evaluating potential threats to the quality and water quantity of their sources of drinking water. The assessment reports are due throughout 2010, and we are looking forward to reviewing them. Once the committees understand the potential threats in their region, they will be required to develop a plan that includes policies to address those that are currently harming their drinking water, as well as those that may harm their drinking water in the future.

Ministry staff reviewed responses to the draft regulations and technical rules posted on the Environmental Bill of Rights registry during the summer of 2008, and listened carefully at roundtable sessions across Ontario, including information sessions hosted by First Nations communities. In November 2008, we finalized the new General Regulation (O. Reg. 287/07) and technical rules that set out how to prepare assessment reports and how to identify threats to source water. As of January 2009, my ministry and the Ministry of Natural Resources provided $135 million toward the cost of technical studies and capacity building.

In June 2009, my ministry posted a discussion paper on the Environmental Bill of Rights registry. This paper discusses the regulatory requirements that the ministry is currently considering for the content and preparation of source protection plans, including consultation requirements being proposed during plan development.

We will continue to work with these committees and other organizations to encourage action on significant issues that affect local drinking water sources in Ontario's source protection areas.

I am pleased to have put in place the Ontario Drinking Water Stewardship Program that provides funding to landowners who take action voluntarily before source protection plans are put in place. Landowners are learning about specific threats that may affect drinking water quality or quantity, measures they could take to address the threats and funding that is available to support them.

Improving the Science Behind Drinking Water Source Protection

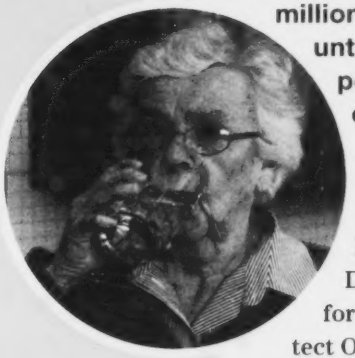
Ontario and Alberta have worked with the Canadian Water Network to implement a research program that will:

- Improve our understanding of the risk that pathogens, including viruses, pose to our sources of drinking water as well as their movement in groundwater
- Help us work together to better understand how we can protect our drinking water from pathogens in a way that appropriately considers the local environment
- Meet our requirement for continuous improvement under the Clean Water Act. For instance, experts from nine countries met to discuss pathogen movement in soils and groundwater at a May 2009 conference in Niagara-on-the-Lake.

My ministry is also undertaking further research, through a Nutrient Management Joint Research Program with the Ontario Ministry of Agriculture, Food and Rural Affairs. This research will provide my ministry's staff with valuable insights on which agricultural activities can impact the environment, including drinking water, and which best management practices are appropriate to manage these activities. This information will help inform the Nutrient Management Act and the Clean Water Act.

The province is promoting research on groundwater recharge and the factors that affect it. This research will build our understanding of how contaminants related to activities on land can impact the source of surface water, and help us make sure that assessment reports and source protection plans under the Clean Water Act are based on the best available information and are continuously improving.

The Ontario Drinking Water Stewardship Program



The Ontario Drinking Water Stewardship Program is providing landowners with $7 million per year over the next two years until March 2011. These funds will support individuals, communities and organizations in taking early action to protect their local drinking water sources.

Rural landowners have received Ontario Drinking Water Stewardship Program funds for three types of voluntary initiatives to protect Ontario's drinking water sources:

- **Education and outreach** to tell the public about this program, the Clean Water Act, and/or drinking water source protection
- **Early actions** to safeguard municipal drinking water sources until local source protection plans could be implemented. Property owners chose to use this financial support for a range of activities including decommissioning unused wells; inspecting and upgrading septic systems; and conducting pollution prevention reviews
- **Special projects** such as removing gasoline storage tanks near surface water intakes and designing pollution prevention review programs.

The Clean Water Act was the first statute of its kind in Ontario to legislate a financial assistance program, known as the Ontario Drinking Water Stewardship Program.

Opportunities for Communities to Participate in Drinking Water Source Protection

The Clean Water Act and its regulations make provisions for many ways that communities can get involved in the protection of their drinking water.

- The source protection committee may agree that municipalities can prepare all work on their drinking water system — from developing the science to developing the initial policies that protect their water supplies.
- Municipalities, farmers, industry, and members of the public can be part of the source protection committees that are responsible for the plans that protect sources of drinking water.
- Source protection committees want to hear directly from the general public and affected people in each community as part of their consultation process.
- First Nations people have a unique opportunity to get involved in this process as well. They can participate on source protection committees, work to understand their systems and allow their communities to have their drinking water protected under the Clean Water Act. One First Nation has, in fact, already passed a band council resolution asking for its drinking water system to be included in the provincial planning process.

Municipalities can use the science generated through the Clean Water Act to initiate early protection of drinking water through their official plans, under the Provincial Policy Statement, which provides direction on matters of provincial interest related to land use planning and development. The regulations and rules for assessment reports are the basis for identifying which drinking water areas are vulnerable, so these areas meet the provincial standard test for the Provincial Policy Statement. This means your community can use smart planning to protect these areas. To find out how to get involved, go to **www.conservation-ontario.on.ca/source_protection/otherswpregionsindex.htm**.

In 2008-09, we improved the program to include:

- Funding adjustments that provide more support for innovative new measures and best management practices that directly protect municipal drinking water sources
- Help to protect municipal sources of drinking water in northern Ontario and other areas outside source protection areas
- A change to funding requirements that allows multi-year agreements that can run until 2011, to allow current arrangements to be extended
- Expansion of the area around municipal wellheads and surface water intakes eligible for protection.

The assessment reports that our source protection committees are now preparing will identify who will be affected by source protection plans and what activities may be threatening drinking water sources. We are reviewing the Ontario Drinking Water Stewardship Program with key partners, stakeholders and local source protection committees on how the scope of the program could be modified to meet the needs of affected persons.

Detailed information on projects supported by the Ontario Drinking Water Stewardship Program is available in the Chief Drinking Water Inspector's Annual Report 2007-2008 at **www.ontario.ca/drinkingwater**.

My government continues to take a leadership role in drinking water source protection — providing assistance where threats to drinking water sources are most likely, and support that will be compatible with local communities' source protection plans.

Keeping Well Water Safe

The Wells Regulation 903, made under the Ontario Water Resources Act, sets out Ontario's minimum construction standards for wells and provides for the licensing of well contractors and well technicians. It says that if you own a well, you must:

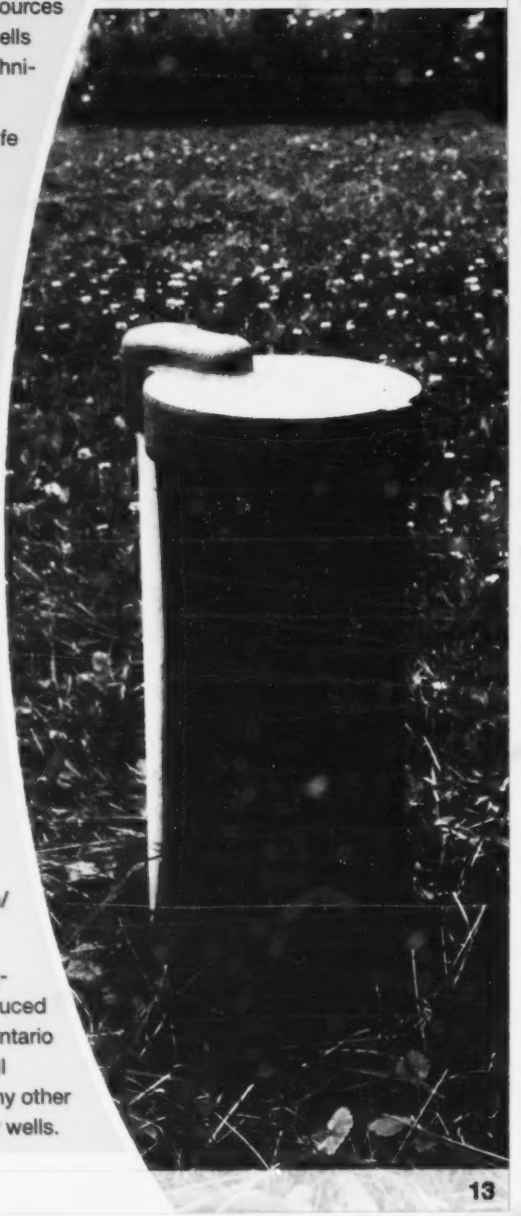
- Protect your water — build your well correctly and in a safe location, away from contaminants
- Maintain your well — keep surface run-off and foreign materials out.

Regulation 903 requires you to abandon (decommission) a well if:

- It produces water that is not potable, unless you seek and follow the direction of the local medical officer of health for corrective steps
- The well is dry
- The well is not properly maintained and the movement of contaminants may impair the quality of water
- The well produces mineralized water
- It is determined that natural gas poses a potential hazard or if well construction standards have not been followed
- The well is no longer being maintained for future use as a well.

For more information, please refer to:

- Regulation 903 and the ministry's fact sheet *Important Facts About Water Well Construction* at **www.ontario.ca/drinkingwater**
- The Well Aware website at **www.wellaware.ca**, which includes the ministry-supported brochure *Well Aware* produced by Green Communities Canada in partnership with the Ontario Ground Water Association. In addition to its website, Well Aware provides information, forums, workshops and many other activities to teach rural well owners how to maintain their wells.



Helping Northern Ontario Communities Protect Their Drinking Water Sources

About 10 per cent of Ontario's population lives in areas not covered by a source protection area. Most of these areas are in northern Ontario where watershed-wide planning is more difficult because of the diversity of local governance structures, a shortage of technical and financial resources and the size of the watersheds. The Clean Water Act provides the opportunity for these municipalities (or cluster of municipalities) to enter into an agreement with the Minister of the Environment to develop a source protection plan that focuses on specific drinking water threats in specific areas, called a scoped source protection plan.

To help municipalities determine whether they should undertake source protection planning, my ministry has made available $10,000 per eligible municipal drinking water system through a grant funding program, to undertake a pre-screening of threats to these systems. This pre-assessment will help municipalities outside source protection areas decide whether to consider entering into an agreement with the province to develop source protection plans.

Youth4Water members from left to right: Zahrah Munas, Emily Macrae, Ying Mao, Pia Johnson, Shiré Brandi and Jae Kim.

Youth Taking Action

Shiré Raul Brandi, a university student in Toronto, wants other young people to understand that they need to get involved in tackling water issues. "We can restore confidence in our drinking water by reconnecting with it, making it part of our identity, taking ownership of what we are doing to it and where it comes from," he says.

As a member of Youth4Water, a group organized by the United Nations Association in Canada, he is putting his words into actions. "It takes many people and a lot of time," says Brandi, "to witness tangible results at the grassroots level — to take proactive steps to take care of our water sources, participate in water conservation and develop action plans to clean up our shorelines."

In March 2009, Youth4Water teamed up with the CTC source protection committee, which is comprised of representatives from Credit Valley, Toronto and Region and Central Lake Ontario source protection areas, to host the first "It-Starts-With-A-Drop-Youth-Forum." Brandi, his peers and committee members discussed source water protection issues in the region and the role of many different sectors in the process. The youth also created a source protection mural funded by the committee.

What's next? "The forum taught us an effective framework for water conservation and source protection — to take multiple approaches so we can tackle all aspects of this issue," says Brandi. "Educators need to work with field scientists to teach the public what they can do; young people need to work with communities, and so on. Youth should be at the front lines of this approach."

Monitoring the Quality of Ontario's Source Water

Ontario is a world leader in water monitoring. Our extensive water quality monitoring programs for the Great Lakes, inland lakes, rivers, streams and groundwater provide valuable information that helps us protect water quality in Ontario.

Taking Action to Protect Ontario's Water

The Water Quality in Ontario 2008 Report. Ontario collects and analyzes tens of thousands of samples from our water, sediment, and aquatic life. This report, released April 20, 2009, puts the scientific information we are gaining into simple, easy-to-understand language. It presents findings on water quality issues including nutrients such as phosphorus, toxic substances, acid rain and climate change. It is available on our website at **www.ene.gov.on.ca/publications/6926e.pdf**.

Learn More About Our Rigorous Water Monitoring Programs:

- Great Lakes Monitoring Program - **www.ene.gov.on.ca/en/water/greatlakes/index.php**
- Provincial (Stream) Water Quality Monitoring Network Program - **www.ene.gov.on.ca/en/publications/dataproducts** and **www.ene.gov.on.ca/programs/5310e.htm**
- Provincial Groundwater Monitoring Network Program - **www.ene.gov.on.ca/programs/5311e.htm**
- Drinking Water Surveillance Program - **www.ene.gov.on.ca/en/publications/dataproducts** and **www.ene.gov.on.ca/en/water/dwsp**
- Inland Lakes Monitoring Program
- Lake Partner Program - **www.ene.gov.on.ca/en/publications/dataproducts** and **www.ene.gov.on.ca/en/water/lakepartner/index.php**
- Ontario Benthos Biomonitoring Network - **www.svca.on.ca/download/benthos**.

My ministry draws upon a broad community of partners to protect our water — within the municipal, provincial and federal governments, and from conservation authorities, universities, research networks, industry and the public. They provide us with information about the state of our lakes, rivers, streams and groundwater. They also help us identify emerging issues and develop new protection measures.

SAFEGUARDING ONTARIO'S DRINKING WATER

As part of our overall commitment to safeguard the health of Ontario's people and its environment, my ministry will continue to take measures to help protect our municipal drinking water at its source.

Our Lead Action Plan is Working

My ministry is protecting Ontario's most vulnerable citizens from exposure to lead in drinking water. We are closely monitoring the results of the comprehensive provincewide Lead Action Plan we implemented in 2007. We now know that the majority of drinking water test results from municipalities, local drinking water system owners, public schools, private schools and day nurseries met the provincial drinking water quality standard for lead and that flushing works.

The main components of our Lead Action Plan are:

- **Sampling and submission of data.** It is mandatory for municipal residential and non-municipal year-round residential drinking water system owners to have their tap water tested for lead by a licensed laboratory twice a year at a specified number of homes and non-residential buildings.

  Under O. Reg. 243/07, all schools, private schools, as well as day nurseries with plumbing installed before 1990, are required to have their drinking water tested for lead annually and flush daily. A more detailed description of this component is included in the Chief Drinking Water Inspector's Annual Report 2007-2008 at **www.ontario.ca/drinkingwater**.

- **Financial plans.** Municipalities have to provide details related to the costs of replacing lead service pipes in the financial plans they are currently developing under the province's new financial plans regulation (O. Reg. 453/07).

- **Corrosion control.** If testing shows that lead is an ongoing problem in a large municipal residential drinking water system, its owner has to prepare and submit a corrosion control plan.

- **Financial assistance** to help low-income families buy a water filter that will reduce the potential health risk of lead in their drinking water. My government created a $4.4 million water filter fund to support this initiative.

- **Best practices.** We have given municipalities guidance, for instance, on encouraging property owners to replace lead service lines.

- **Education.** We are providing drinking water system owners and operators with information and assistance on sampling and reporting requirements.

- **Voluntary sampling.** Drinking water system owners must recruit volunteers to have tap water in their homes and buildings tested for lead. Samples are to be taken from plumbing suspected to be lead plumbing or containing lead solder or that is connected to lead service lines.

Community Lead Testing Program

We require owners of municipal residential and non-municipal year-round residential drinking water systems to ask a specified number of home and business owners in higher-risk areas to volunteer to have their tap water tested for excess levels of lead twice a year — in winter and in summer. Drinking water system owners collect samples, from indoor taps and from the distribution pipes that deliver drinking water to properties, to be analyzed.

Large municipal residential systems that report lead results above a certain threshold over several sampling rounds have to prepare and submit a corrosion control plan showing how they will reduce the concentration of lead in their drinking water.

System owners and operators must provide the people who live in these homes or work in these businesses with a report of the test results. If these tests show that a drinking water sample from plumbing exceeds the standard for lead, municipal and non-municipal owners and operators must report the results to the local medical officer of health and work with the local health unit to tell the people who live or work in these buildings what they can do to reduce their exposure to lead in drinking water.

Schools, Private Schools and Day Nurseries

Most of these facilities have drinking water which meets the standard for lead. We also now know that flushing the plumbing in older buildings works as it reduces the lead levels in the drinking water.

This is why Ontario's schools, private schools, as well as day nurseries with plumbing installed before 1990, are required to flush their plumbing on a daily basis, before the children arrive.

The 2007 testing for lead in schools, private schools and certain day nurseries showed that:

- Most facilities have drinking water which meets the standard for lead
- The few facilities with lead levels above the standard in their drinking water were spread throughout the province. No one area in Ontario had excess lead in its public school, private school or day nursery drinking water
- Lead concentration in drinking water was consistently lower in samples taken after flushing
- Most public schools and day nurseries met their responsibility to sample, and have their samples tested for lead
- Although over half the private schools did not sample their tap water for lead, the majority of the results of those who did, met the standard. My ministry has implemented a plan to promote better compliance.

Providing safe drinking water is a shared responsibility. I am pleased to note that the response rate from owners of municipal residential drinking water systems, in meeting their sampling requirements during the Lead Action Plan's first year, has been very positive. More work needs to be done to help non-municipal year-round residential drinking water system owners meet their sampling requirements.

Lead Action Plan Update

Ministry-licensed laboratories analyzed more than 37,000 plumbing and 5,000 distribution samples from the first round of community testing, conducted between December 15, 2007 and April 15, 2008. They found that approximately 98 per cent of plumbing and distribution samples tested met the Ontario Drinking Water Quality Standard for lead.

Ontario's schools, private schools, as well as day nurseries with plumbing installed before 1990, submitted drinking water samples to licensed laboratories. The results of the 2007 testing for lead in schools, private schools and certain day nurseries showed that 94 per cent of samples met the standard for lead.

As part of our education and outreach efforts, we are taking strong action to protect Ontario's most vulnerable citizens from exposure to lead in drinking water:

- We encourage residents who live in older homes to volunteer to have their tap water tested
- Public and private schools, as well as day nurseries, will need to keep testing their drinking water for lead as required
- We are contacting every private school in the province to tell them about our regulatory requirements and make sure they are complying
- We are encouraging municipalities to conduct public education campaigns
- We are working with the Ministries of Education and Children and Youth Services to coordinate information, and with local medical officers of health to resolve lead problems where they happen.

Safeguarding Small Drinking Water Systems

Regulatory oversight of our small drinking water systems has been transferred to the Ministry of Health and Long-Term Care.

After many consultations with drinking water experts, system owners and operators and the public, regulatory oversight for small drinking water systems was transferred to the Health Protection and Promotion Act, under the Ministry of Health and Long-Term Care. The transfer occurred under the Health Protection and Promotion Act on December 1, 2008.

Small drinking water systems are now regulated under the Health Protection and Promotion Act and two new Small Drinking Water Systems regulations made under the act. You can find the Health Protection and Promotion Act and its regulations governing small drinking water systems at **www.e-laws.gov.on.ca/index.html**.

These systems provide drinking water to seasonal trailer parks and campgrounds, motels, resorts, restaurants, gas stations and places of worship. They also provide drinking water to municipally owned airports, industrial parks, small community centres, libraries, and sports and recreation facilities. If they serve a designated facility, such as a daycare or health care facility, however, they will continue to be regulated under the Safe Drinking Water Act and O. Reg. 170/03 (Drinking Water Systems).

These systems vary widely in size and complexity. This change in oversight provides their system owners and operators with the tailored approach they require to protect their drinking water in a way that meets the needs of their specific system, based on its actual risk level. They will still need to meet provincial standards for drinking water quality, and use laboratories licensed to perform drinking water testing.

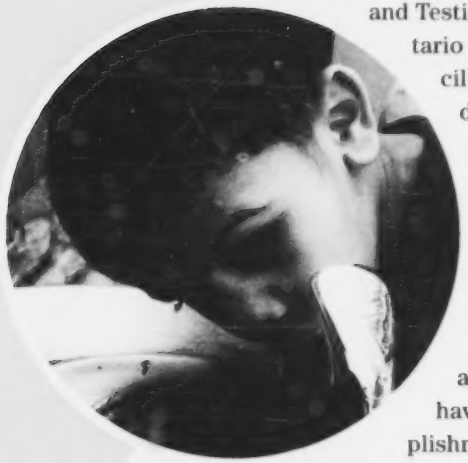
The public health inspectors from local health units who will be inspecting small drinking water systems are specially trained to assess health risks and tell owners and operators what they need to do to protect their drinking water.

Owners and operators of these small drinking water systems need to meet their responsibilities under the new regulations. Their local public health inspector will conduct a site specific risk assessment and make sure they are complying with the new regulations.

Setting Standards

We safeguard Ontario's drinking water quality through tough standards that set stringent health-based limits for 158 parameters in drinking water. These standards go hand-in-hand with two other components of our drinking water safety net — regular and reliable testing and swift, strong corrective action on adverse water quality incidents.

Advisory Council on Drinking Water Quality and Testing Standards



The Advisory Council on Drinking Water Quality and Testing Standards known as the Ontario Drinking Water Advisory Council regularly provides advice on drinking water quality standards. The Advisory Council members include people from academia, industry and municipalities. They are experts in areas such as microbiology, toxicology, risk assessment, engineering, operations of utilities and wells and public health. All members have a record of interest and accomplishment related to drinking water.

Over the past year, the Advisory Council provided advice on new proposed standards for tritium and haloacetic acids. You can read about the Advisory Council's recommendations and also their recent activities and accomplishments in their 2007-2008 Annual Report at **www.odwac.gov.on.ca**.

Our drinking water is valuable. My ministry will continue to take a leadership role in protecting this precious resource by maintaining strict drinking water quality standards and by requiring stringent testing and inspections of drinking water facilities.

Mandatory Licensing, Operator Certification and Training

My ministry continues to work closely with municipalities and municipal residential drinking water system owners and operators to set the bar higher than any other jurisdiction on licensing, operator certification and training. This past year, as part of our commitment to education and outreach, ministry staff met with municipalities to provide face-to-face guidance and support.

Update on Our Municipal Drinking Water Licensing Program

We have made great strides in implementing rigorous requirements for the owner's licence that is mandatory for the owners of all municipal residential drinking water systems.

As part of our new licensing process, we require every owner and operating authority to prepare an operational plan that documents a Quality Management System based on Ontario's Drinking Water Quality Management Standard. The drinking water sector developed this Quality Management Standard especially for this province's municipal residential drinking water systems. An auditor from the Canadian General Standards Board — an objective outside party — will audit each Quality Management System before accrediting the system's operating authority. For the 20 licences issued as of June 30, 2009, the auditor confirms that these quality management practices are in place.

These requirements will help owners and operating authorities continually improve their systems' performance through management oversight of their policies, processes and procedures. It is an investment in the future and an important part of the licensing process.

We are building consumer confidence by ensuring that all system owners take the first step in planning for the long-term financial sustainability of their drinking water systems:

- The Financial Plans Regulation, under the Safe Drinking Water Act, requires owners of municipal residential drinking water systems to prepare financial plans and submit them to the province
- Financial plans for existing systems must include details of the financial activities related to the replacement of lead service pipes.

Large municipalities began to apply for a drinking water licence and drinking water works permit and submit their operational plans in January 2009. Medium- and smaller-sized municipalities will have to complete their applications by June 2010. We're also phasing in licence applications based on system location. Systems in the southwest part of the province will have to submit their applications first, followed by those in the southeast, and then those in the north.

My ministry is helping municipalities understand the Municipal Drinking Water Licensing Program by working with the Walkerton Clean Water Centre to provide training to municipalities on how to meet the requirements of the Drinking Water Quality Management Standard. The Walkerton Clean Water Centre is delivering three courses to municipal representatives — the *Drinking Water Quality Management Standard*, *Risk Assessment and Emergency Preparedness*, and *Internal Auditing for the Drinking Water Quality Management Standard*.

Our Municipal Drinking Water Licensing Program is another example of our commitment to continuous improvement. Ontario is the first jurisdiction in North America to mandate a Quality Management System for municipal residential drinking water systems.

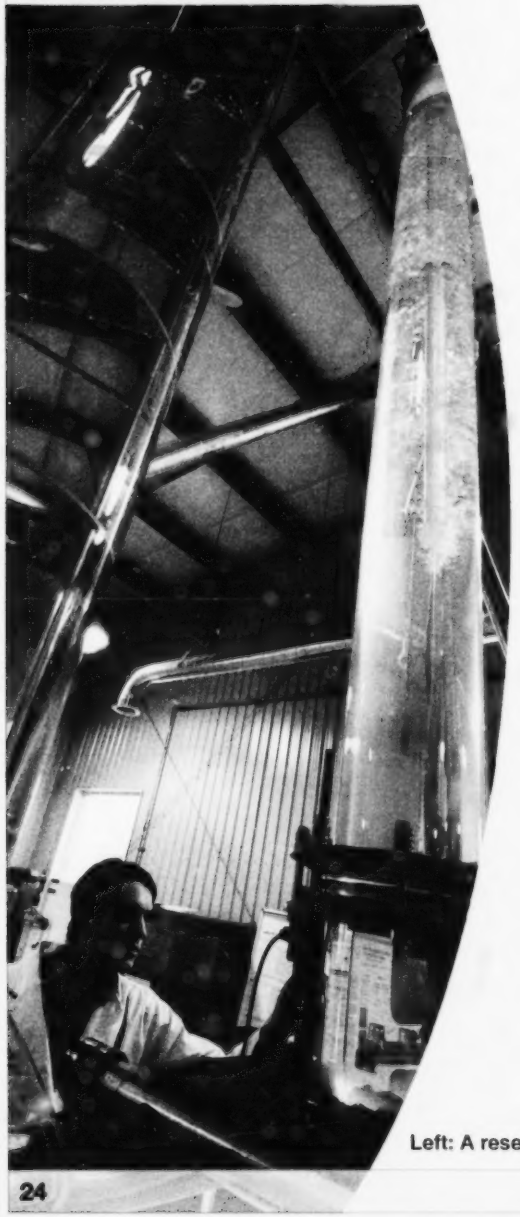
Operator Certification

Ontario's certification and training requirements are among the most stringent in North America.

Drinking water system operators of municipal residential drinking water systems and non-municipal year-round residential systems in Ontario must be certified. Operators of other regulated drinking water systems must be trained and in some cases be certified. In order to maintain their certification, they must upgrade their knowledge and skills with 20 to 50 hours of training, including continuing education, every year.

As part of my ministry's commitment to providing Ontario's drinking water system operators and drinking water quality analysts with the most up-to-date training information, my ministry introduced a new mandatory course in December 2008. *Safeguarding Drinking Water Quality* includes the very latest developments in drinking water treatment, inspections, quality maintenance and distribution, and provides valuable information about the roles and responsibilities of drinking water operators.

My ministry is also working with Ontario's community colleges to increase the skill and knowledge of the next generation of drinking water operators. In 2008, four colleges signed an agreement with the ministry to incorporate a drinking water curriculum in their environmental and engineering technician programs, bringing the total number of colleges that offer the course to twelve. The Walkerton Clean Water Centre is also helping college students by funding co-op placements for individuals interested in becoming a drinking water operator.



Left: A research assistant conducting an experiment.

Walkerton Clean Water Centre Initiatives

The Walkerton Clean Water Centre provides owners and operators of both large and small drinking water systems the training and mandatory continuous learning they need to meet Ontario's rigorous training and certification requirements. This is one more reason why the people of Ontario can have confidence in the quality of their drinking water.

Training Operators in Ontario's Small and Remote Communities

The Walkerton Clean Water Centre is reaching out to the many operators of small drinking water systems in remote communities by bringing the training to them.

The Walkerton Clean Water Centre's two mobile training units, essentially classrooms on wheels, travel to small, remote communities and First Nations communities in northeastern and northwestern Ontario. Each unit contains leading-edge drinking water training and technology demonstration classrooms. These mobile units are well equipped to provide operators with the knowledge they need to keep their drinking water safe and of high quality.

Each mobile classroom offers a one-day operator training course, Drinking Water Treatment and Quality Monitoring, developed and tailored to use the drinking water treatment and water quality laboratory equipment aboard each unit.

The mobile training units are driven to events such as forums, career fairs, and offer promotional tours and the one-day training courses. First Nations communities have showcased them, in their communities, as part of a number of events. As of February 1, 2009, there were 162 First Nations certified operators, holding 251 drinking water certificates.

During 2009-10, the Walkerton Clean Water Centre plans to put a third mobile unit on the road.

These measures are the basis for providing Ontario with knowledgeable and professionally trained people to protect its drinking water from source-to-tap.

Enforcement of Regulations

Enforcement of the law is an important tool in our multifaceted compliance improvement toolkit. We will not tolerate polluters. If you spill, you pay.

Ontario has put Environmental Penalties regulations in place that impose tough environmental monetary penalties on large industries, such as power generation, pulp and paper, chemical and petroleum plants, in the event they pollute the source water we rely upon for drinking water.

As of September 1, 2008, companies must develop and implement spill prevention and contingency plans for plants regulated under Ontario Regulation 224/07.

Ontario Community Environment Fund

Funds collected from environmental penalties will be used for projects located in the watersheds in which the violations occurred.

Eligible groups such as Aboriginal communities and organizations, academic institutions, conservation authorities, municipalities, non-profit organizations and/or community-based groups are able to apply for funding for projects including:

- Environmental remediation
- Research and education relating to spills and restoration
- Projects related to spill preparedness.

These measures are an incentive to prevent industrial spills from happening in the first place. They also make polluters step up and pay. I am very pleased with the progress we have made in imposing targeted enforcement actions to protect our precious water resources for future generations.

Emerging Drinking Water Issues

This section describes emerging drinking water issues and my ministry's activities to track and address them. It includes a description of research activities, monitoring work and technological solutions in Ontario.

Ontario is recognized around the world for excellence in water science and technology. My ministry's scientists and a broad community of other professionals provide us with information to help us identify emerging issues and develop new protective measures.

Pathogens and Chemical Pollutants

We are using the latest research to understand potentially harmful pathogens and chemical pollutants in source water. We are also working on how to prevent or minimize their entry into our waterways.

- **Pathogens** are organisms that cause disease in another organism. Our scientists are working on ways to learn more about how pathogens make their way to water sources. One example is their collaborative initiative with universities on a tool known as Microbial Source Tracking. Microbial Source Tracking could help scientists distinguish between microorganisms that originate from different fecal sources.
- **Chemical pollutants** are chemicals that occur naturally or are synthetic. They can be released to the environment when they are manufactured, processed and/or used.

Best in Science

My ministry established the Best in Science Program in 2004 to increase its overall scientific capacity, including its knowledge of science focused on drinking water. This program supports collaboration in Ontario's broader scientific community by drawing on leading scientists and research alliances that involve Ontario's universities, colleges and other research institutions to undertake research that builds our knowledge of environmental science and issues. My ministry contributes scientific expertise, funding and other resources to these scientists and research alliances.

To date, the program has supported over 100 research project partnerships. These partnerships have broadened our knowledge on topics such as the environmental occurrence, transport and fate of emerging contaminants and advancements in technologies. Their value is at over $26 million, including combined ministry-partner contributions, and they are expected to lead to the preparation of over 120 peer-reviewed scientific publications. For more information, please go to **www.ene.gov.on.ca/en/news/2009/063001.php**.

Developing Processes for Dealing with Biofilm Growth

My ministry's laboratory is conducting preliminary studies that could eventually help us deal with the growth of biofilms – communities of microorganisms that can stick to the insides of water pipes. Biofilms themselves do not usually affect our health. They can, however, house other organisms that could, potentially, affect human health. They can also change the taste of water or corrode pipes.

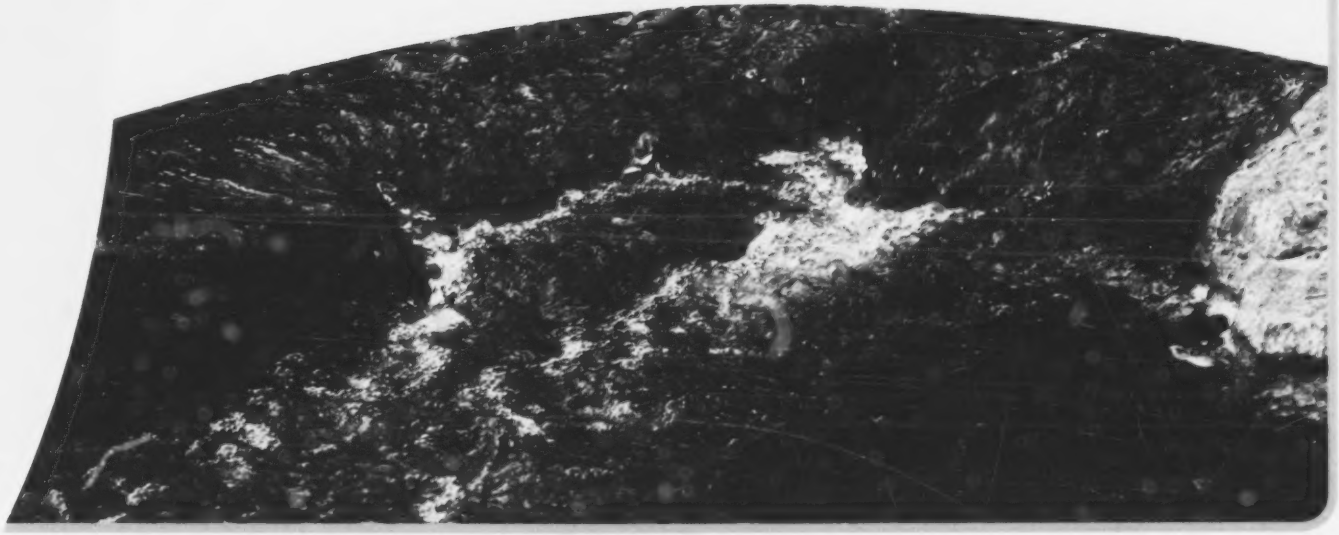
Monitoring Pharmaceuticals and Other Emerging Contaminants

Studies we conducted show that our drinking water treatment processes can reduce the levels of some pharmaceuticals from source water. My ministry collected and analyzed 258 water samples from 17 drinking water systems to learn more about 46 different pharmaceuticals, antibiotics, and hormones. The amount of pharmaceuticals or other emerging contaminants in drinking water was very small — nanograms per litre or parts per trillion. We found that the concentration of the detected compounds was lower in treated drinking water than in source water for most of the compounds we studied.

These studies provide information on the presence of these contaminants that can help us find ways to prevent or minimize their entry into our source water.

Monitoring Levels of Cyanotoxins in Ontario Lakes and Rivers

Cyanobacteria, most commonly known as blue-green algae, grow naturally in lakes and rivers. They are mostly harmless, but some release toxins, called cyanotoxins, that can harm animals and humans if consumed via drinking water. We have been collecting data on cyanotoxins since 2004, at nine drinking water systems near source waters where cyanobacteria are likely to occur. Our studies note the occasional presence of cyanotoxins in some lakes and rivers. They also show that the amount of cyanotoxins in Ontario's drinking water meets the Ontario Drinking Water Quality Standard. We have a protocol in place to deal with algal blooms and an Ontario Drinking Water Quality Standard for Microcystin LR, a cyanotoxin that can be harmful if ingested via drinking water. Please visit our website at **www.ene.gov.on.ca/envision/gp/4449e01.pdf** to read more about the protocol.



Emerging Sciences and Technologies

New sciences and technologies can create more opportunities for a safe, sustainable drinking water supply. My ministry is working on the following areas to assess new water testing techniques and provide guidance on best practices in water treatment:

- **An automated system that monitors contamination by microbes on site.** This system is designed for installation inside water treatment facilities to analyze the water for microorganisms. It could be used as a rapid screening tool to detect poor water quality.
- **A more stringent drinking water quality standard for by-products of chlorination.** We need to disinfect drinking water with chlorine, ozone, or chlorine dioxide to get rid of potentially harmful microorganisms. The chlorine can, however, react with natural organic matter, creating disinfection by-products that could, in high concentrations, harm human health. We are reviewing standards for the group of disinfection by-products known as trihalomethanes.

My ministry is developing guidance documents that will help small drinking water system operators evaluate their current operating practices and make adjustments in this area. Some communities are looking into innovative alternative approaches to reduce disinfection by-products — such as simple, low-cost aeration.

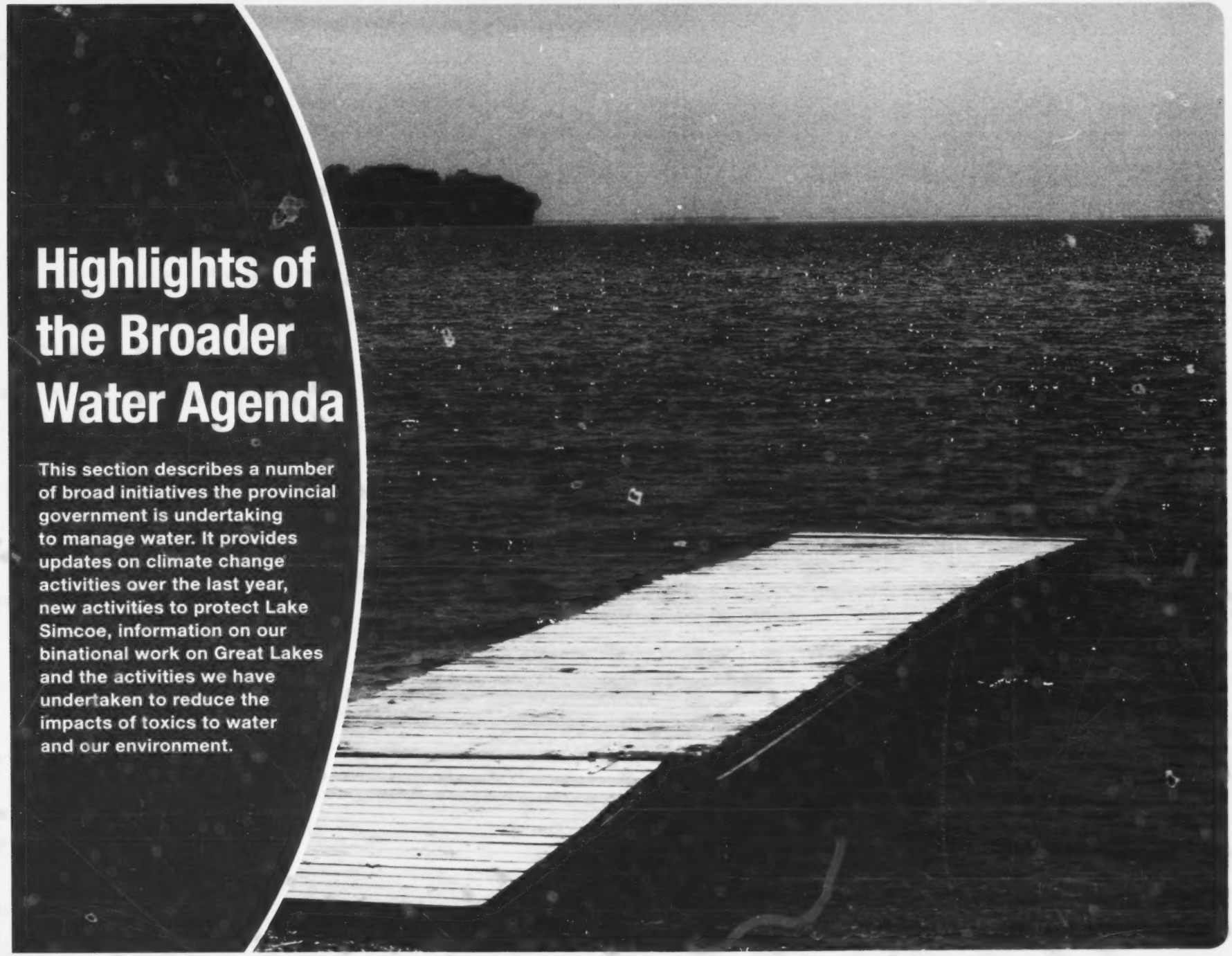
My ministry will continue to undertake and support research to better understand emerging issues, particularly those that could affect Ontario's water resources. We will also continue to share the latest advances in drinking water science and drinking water protection developments with other jurisdictions and research organizations throughout the world.

Promoting Ontario's Drinking Water Technologies

Ontario's 2008 Environmental Trade Mission to China focused on building new partnerships. More than 25 delegates from some of Ontario's most innovative companies took part. They showcased some of the province's green technology leaders, including companies that specialize in treatment of water and wastewater. A smaller mission built on the success of this first mission returned in 2009.

Highlights of the Broader Water Agenda

This section describes a number of broad initiatives the provincial government is undertaking to manage water. It provides updates on climate change activities over the last year, new activities to protect Lake Simcoe, information on our binational work on Great Lakes and the activities we have undertaken to reduce the impacts of toxics to water and our environment.



We are entering a time of unprecedented change. Climate change poses a real threat to the health of Ontario's environment and the well-being of its citizens. My government is taking measures to better understand climate change. Adapting to climate change is about taking action now to protect ourselves, our environment, and our economy in the years to come. That is why we are incorporating climate change adaptation into our many programs particularly the Clean Water Act, which protects Ontario's drinking water.

Climate Change Adaptation

While Ontario is actively cutting its greenhouse gas emissions, the greenhouse gases already in the atmosphere will still affect our climate and may have significant impacts on all our resources.

We are working with world-class experts. Our Expert Panel on Climate Change Adaptation, led by 11 world-renowned scientists and adaptation experts, has identified drinking water and source protection as one of the most important issues to tackle when we consider and implement adaptation measures. The panel will provide the government with advice on adaptation strategies to address the impacts of climate change on our health, environment, and infrastructure. For more information, please go to **www.ene.gov.on.ca/en/air/climatechange/index.php**.

We are reviewing stormwater policies. My ministry's review of Ontario's provincial stormwater policies with regard to climate change will be completed in 2010. This review will contribute to ensuring that any future policies on management of stormwater will take climate change adaptation into account.

Source protection committees are required to include, within their assessment reports, information available in their area on the projected impacts of climate change on local climate trends. They then indicate whether they think climate change could impact the vulnerable areas and threats to drinking water that they have identified. My ministry will review the climate change information and consider whether the requirements to update assessment reports should be amended to build projected climate trends into the identification of vulnerable areas and threats to drinking water in the future.

We are building climate change adaptation into major agreements and legislation protecting our water. We are considering climate change adaptation in the development of Great Lakes agreements such as the Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem and the Great Lakes-St. Lawrence River Basin Sustainable Water Resources Agreement, signed in 2005 with Quebec and the eight Great Lakes states.

Additup: Small Steps Make a Big Difference

Additup, our ongoing public education campaign, is helping people understand that small actions can go a long way towards restoring and preserving Ontario's air, land and water. Here are a few things you can do around your home to make sure everyone can share in our drinking water resources today and tomorrow:

- Choose tap water as your drinking water. Your municipal system's tap water is safe, of high quality and an environmentally responsible choice.
- Do not pour household hazardous wastes, pharmaceutical products or other substances that contaminate our water resources down your drain or the storm drain on your street.
- Be conscious about the amount of drinking water you use and potentially waste. Shower for a minute or two less, and turn off the tap while brushing your teeth.
- Instead of letting the garden hose run, wash your car through its trigger nozzle, or with a sponge and bucket.

Please visit our additup website for more tips at **www.additupontario.ca**.

We are measuring our progress and educating our communities. We supported the POLIS Project on Ecological Governance by identifying the greenhouse gas and energy benefits of water conservation. This included developing a tool for municipalities to calculate energy savings and carbon dioxide emissions reductions from water conservation measures. We have also supported webinars developed by the Alliance for Resilient Cities. These webinars have helped municipalities and communities learn what they will need to do to adapt to climate change.

We are funding community action. My ministry's Community Go Green Fund is providing funding to public schools and local community-based organizations for citizens and students to learn about climate change including water stewardship. One project created a large wetland that will purify up to 35 million litres of water per year. The wetland creation involved building a clay core berm, excavating areas to act as a permanent refuge for frogs and turtles and planting the perimeter of the wetland with over 25,000 native trees, shrubs and wildflowers. More than 500 student and community volunteers have been involved in water stewardship activities addressing the importance of trees, forests and wetlands to ensure healthy watersheds for future generations. This project is also educating students and local citizens on the role of wetlands in water storage and purification, species biodiversity and climate change.

Go to our website at **www.ene.gov.on.ca/en/air/climatechange/cggf.php** for information on how to apply for funding and to learn about projects that we have funded.

Protecting Lake Simcoe

The Lake Simcoe Protection Act received Royal Assent on December 10, 2008. It provides my government with the legislative authority to take a number of actions to protect and restore the ecological health of this important watershed — including the requirement to establish a Lake Simcoe Protection Plan. These measures also keep the promise to improve Lake Simcoe's water quality, protect its natural heritage and resources, and manage the effects of climate change and invasive species.

We developed our draft Lake Simcoe Protection Plan with input from science and stakeholder advisory committees and the people who live and work around the lake. On January 13, 2009, we posted the draft plan on the Environmental Bill of Rights registry for public comment. The final plan was established and released on June 2, 2009 and is the first of its kind in Ontario to address environmental protection of a watershed. The plan sets a gold standard of sustainability — one that raises the bar for environmental protection of a watershed.

This plan includes policies to protect and restore Lake Simcoe and its watershed and address the issues of cumulative impacts, including excess phosphorus and other pollutants that threaten the health of the lake. It considers stressors that have harmed this environment over time, to keep development and activities around the lake environmentally sustainable. The plan also sets priorities and targets for addressing the key threats to the lake. For example, the plan requires:

- A phosphorus reduction strategy to reduce the amount of phosphorus in the lake by a specific, measurable amount — from today's 67 tonnes per year down to 44 tonnes per year
- A dissolved oxygen target of 7 mg/L — the amount of oxygen required to restore a self-sustaining coldwater fishery
- Actions to protect key groundwater and natural heritage features so that at least 40 per cent of the watershed attains high quality natural vegetative cover.

Everyone Has a Role to Play

In October 2008, young leaders from First Nations and the community, all aged 20-35, took an intensive course in the future of Lake Simcoe and their role in protecting it on Lake Simcoe's Georgina Island.

Waterlution, a non-profit organization, developed and delivered this 30-hour residential workshop. Staff from my ministry, other ministries and the Lake Simcoe Region Conservation Authority were field guides, technical advisors and policy advisors.

Participants took a guided field trip to innovative stormwater management systems, sewage treatment plants and eco-friendly farms. They learned about threats to the Lake Simcoe watershed and provided their input on priority areas and policy solutions to protect it.

Lake Simcoe Stewardship Rangers

Last summer, Lake Simcoe Stewardship Rangers helped ensure safe, sustainable drinking water for Lake Simcoe, and also learned that everyone can play a role in environmental stewardship.

The youth team worked with private landowners as well as the Chippewas of Georgina Island First Nations, the Town of Newmarket, York Environmental Stewardship, the Ministry of Natural Resources, the Ladies of the Lake, Ontario Parks, Ontario Streams, Kids for Turtles (see **www.kidsforturtles.com**), and the Lake Simcoe Region Conservation Authority on:

- Shoreline restoration and assessments, wildlife habitat creation, invasive plant species removal, trail maintenance and cleanup projects
- Inventories of species at risk in the watershed and the ecological quality of public access points along the lakeshore
- Outreach activities such as teaching landowners about shoreline naturalization.

My ministry supported the Lake Simcoe Stewardship Rangers, with guidance from the Windfall Ecology Centre and the Ministry of Natural Resources through the Ontario Stewardship Ranger youth employment program. To learn more about the Ontario Stewardship Ranger program, please visit **www.mnr.gov.on.ca/en/Business/Youth/2ColumnSubPage/STEL02_163380.html**.

We are supporting this plan by providing $20 million for implementation over four years (2008-2012). This investment focuses on agricultural stewardship, new and enhanced science and monitoring, and coordinating the implementation of strategic actions in the plan. Along with ongoing coordination and collaboration among the many organizations and communities that have brought us this far, this funding will stand us in good stead as we take action on the plan.

The plan will evolve and improve over time, based on new science and changing conditions.

Our community involvement approach will ensure the long-term protection of the lake and its watershed for generations to come. We need everyone around the lake to take part in the process and make this plan work.

You can learn more about what we are proposing to make sure that Lake Simcoe and its watershed remains healthy at **www.ene.gov.on.ca/en/water/lakesimcoe/index.php**.

Stewardship Rangers and the Lake Simcoe Region Conservation Authority working on the Maskinonge River.

Reducing Phosphorus Levels in Lake Simcoe

We have supported innovative interim measures to lower the amount of phosphorus entering the lake from various sources — a cornerstone objective of the Lake Simcoe Protection Act — while the Lake Simcoe Protection Plan was being finalized and while a phosphorus reduction strategy was being completed, such as:

- **Limiting phosphorus discharges.** Through an interim regulation, we are limiting phosphorus discharges from municipal and industrial sewage treatment plants; preventing the establishment of new sewage treatment plants that would discharge phosphorus; and making sure stormwater management facilities that serve new developments meet the highest design standards. This interim regulation (O. Reg. 60/09 made under the Ontario Water Resources Act) is in effect from April 1, 2008 to March 31, 2010.
- **Supporting promising pilot projects.** We are evaluating a clay-based product that is successfully removing up to 95 per cent of phosphorus from water, without harming its quality or aquatic species, around the world. We are also funding stormwater management demonstration projects.
- **Supporting scientific research.** We are funding University of Guelph and Trent University studies on how phosphorus enters the lake from rain, snow and wind borne dust.

With the plan in effect, binding policies are now in place to help limit the amount of phosphorus in Lake Simcoe. We will take additional action to control and reduce the amount of phosphorus in the lake, including policies to identify and address the reasons for decreased water quality as well as policies to enhance existing water quality.

- **Implementing stricter controls** on sewage treatment plants, stormwater management, septic systems and construction activities, and encourage better management practices for agricultural, rural and urban communities.
- **Supporting a coordinated and phased approach** to developing the phosphorus reduction strategy for the Lake Simcoe watershed.
- **Undertaking a study to consider the feasibility of establishing a water quality trading program** to improve water quality in the Lake Simcoe watershed. The goal of a trading program is a net reduction of a pollutant through economic-based tools. The study would allow the ministry to determine whether to create a regulation that would establish a water quality trading program as enabled in the Lake Simcoe Protection Act.

Protecting Our Great Lakes

The Great Lakes and St. Lawrence River are essential to our economic prosperity, the strength of our communities and our health and well-being. I am very proud of the decisive actions we have taken and the progress we have made in protecting this precious water for future generations.

The Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem

Through this agreement, Canada and Ontario coordinate their joint actions on the Great Lakes. The agreement also helps Canada meet its obligations under the Canada-U.S. Great Lakes Water Quality Agreement.

Under the current agreement, which expires in March 2010, we are committed to taking actions which will safeguard the Great Lakes as a source of drinking water. We have committed $30 million to clear away contaminated sediment in Hamilton Harbour. We are also investing $32.4 million to reduce the release of pollutants into the lakes, restore and enhance fish and wildlife populations and habitats, and participate in binational lakewide management planning efforts in the Great Lakes.

Exchanging Ideas and Building Consensus

We are developing a shared vision and set of values on many fronts to restore, protect and conserve our Great Lakes.

100th Anniversary of the Boundary Waters Treaty

2009 marks the centennial anniversary of the signing of the Boundary Water Treaty. It led to the creation of the International Joint Commission and the Canada-U.S. Great Lakes Water Quality Agreement. A special ceremony was held in June 2009 at the International Boundary on the Rainbow Bridge where Canadian and American officials announced that Canada and the United States are committed to amending the Great Lakes Water Quality Agreement.

Canada-U.S. Great Lakes Water Quality Agreement

The Canada-U.S. Great Lakes Water Quality Agreement, signed in 1972, has not been updated since 1987. Canada and the United States have made new commitments to renew and update this agreement. We need to do more to protect these lakes against invasive species, climate change, the effects of urban growth, and conditions in the water close to their shores.

Stakeholder and Aboriginal Community Engagement — Healthy Great Lakes, Strong Ontario

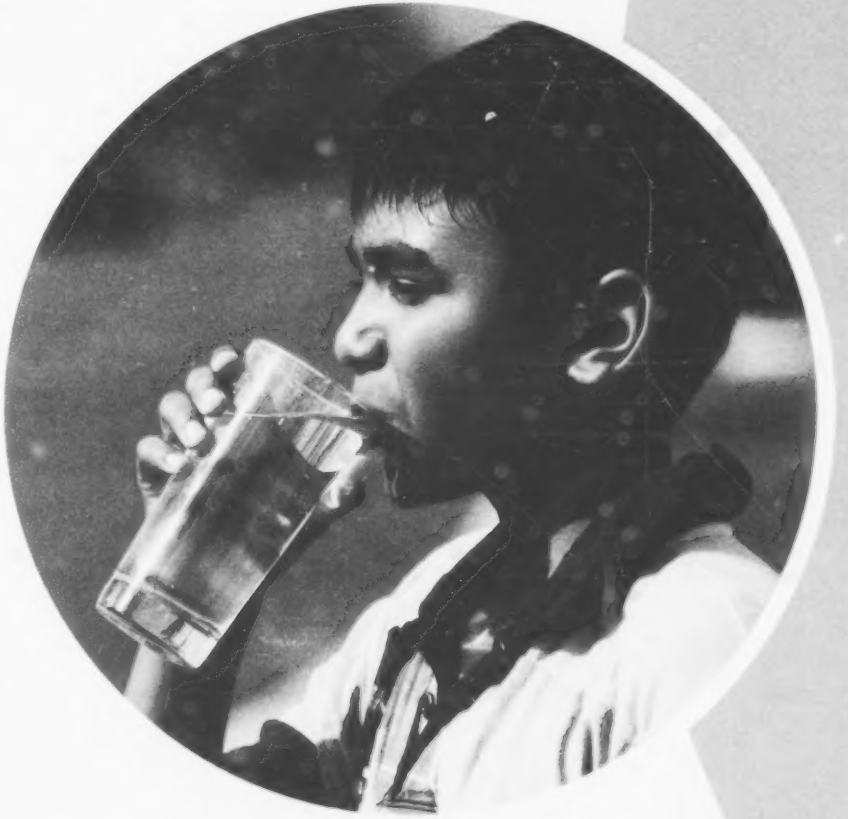
Along with other Ontario government ministries, we have proposed five long-term goals to protect the health of the Great Lakes. The goals, our shared vision and nine short-term strategies to meet them were posted on the Environmental Bill of Rights registry this past spring. These proposed goals are:

- Resilient ecosystem
- Human health and well-being
- Green, diverse economies
- Sustainable natural resources
- Strong communities.

During spring 2009, my ministry and the Ministries of Natural Resources and Agriculture, Food and Rural Affairs met with stakeholders on our vision, goals and strategies. We plan to use the public's, stakeholders' and Aboriginal communities' input as we move forward on future Great Lakes initiatives together.

For more information, go to our discussion paper for these meetings, *Healthy Great Lakes, Strong Ontario* at **www.ebr.gov.on.ca**.

These initiatives provide us with an opportunity to listen to your input on what is important to the future of the Great Lakes, hear your advice on what our priorities should be, and help us develop programs and policies — bringing our stakeholders' priorities to the table in planning for the future of the Great Lakes.



The Great Lakes and St. Lawrence Cities Initiative

On July 17, 2008, my government and municipal officials from around the Great Lakes began a new era of working together to meet the challenges of restoring, protecting and conserving the Great Lakes Basin Ecosystem.

My ministry, the Ministries of Natural Resources and Agriculture, Food and Rural Affairs and Ontario representatives of the Great Lakes and St. Lawrence Cities Initiative, signed a Memorandum of Cooperation that will run until March 31, 2010. The Great Lakes and St. Lawrence Cities Initiative is a coalition of more than 50 mayors and other municipal officials from Canada and the United States committed to the health and well-being of the Great Lakes and St. Lawrence River system.

This exciting pact with Great Lakes' municipalities demonstrates our commitment to work collaboratively together on issues of mutual interest in the Great Lakes, including the Canada-Ontario Agreement.

Safeguarding and Sustaining Ontario's Water Act

We are protecting both the quality and the quantity of the water in our Great Lakes. We began prohibiting the transfer of water out of all three of Ontario's water basins, including the Great Lakes Basin, in 1999. The passage of the Safeguarding and Sustaining Ontario's Water Act by the legislature in 2007 amended the Ontario Water Resources Act to give us the authority to establish regulations for intra-basin transfers, water charges and conservation and efficient use of water. In January 2009, we began charging phase-one highly consumptive commercial and industrial water users for the water used. In collaboration with the Ministry of the Natural Resources, my ministry posted a proposal paper on the Environmental Bill of Rights registry, in August 2009, for managing intra-basin transfers, developing a water conservation and efficiency strategy for Ontario, and implementing the second phase of water charges in the province.

Great Lakes Binational Toxics Strategy

We are working with the United States Environmental Protection Agency, Environment Canada and other Great Lakes stakeholders to develop cooperative voluntary actions on substances of concern to human health or the environment in the Great Lakes Basin. Governments are currently reviewing substances that could be appropriate to include in the Great Lakes Binational Toxics Strategy. Ontario will be able to use this information to inform its own programs, including the Canada-Ontario Agreement and the provincial Toxics Reduction Strategy, among others.

We will continue to work across borders and with our partners at every level, including our communities, other provincial ministries and the federal government, to integrate the water management of our Great Lakes. With our combined talents, expertise and resources, we will help protect, conserve and restore their health, watersheds and aquatic ecosystems.

Protection from Toxics

Ontarians want a strong economy and a high quality of life. Working with our partners, we are making inroads to reduce toxics and also build greener, healthier communities while supporting the transformation of businesses in Ontario to a green economy.

The Toxics Reduction Act

I introduced Bill 167, the Toxics Reduction Act, to the legislature on April 7, 2009, and pointed out that it addresses three key areas of concern. First, toxic substances are used in nearly all industrial and production activities. Second, they're commonly found in products we use every day. And third, they can negatively impact our environment and our health.

This new legislation is the cornerstone of Ontario's Toxics Reduction Strategy — a strategy that takes a balanced approach to reducing the use and release of toxic substances at the beginning of industrial production processes by setting out a framework for facilities to plan for toxics reduction. The legislation, which received third reading in the Ontario legislature on June 3, 2009 and received Royal Assent on June 5, 2009, will require facilities prescribed by the regulation to:

- Track and evaluate their current use and creation of toxics
- Develop a plan to reduce the use and creation of toxics and
- Make a summary of the plan available to the public, as part of our commitment to informing Ontarians about toxic substances.

To help facilities comply with the requirements of the act and to help position them for the green economy, Ontario will provide $24 million over three years. These funds will provide Ontario's industries with financial support to transform their processes, find green chemistry alternatives and reduce the use of toxics in their operations.

I am grateful to the Toxics Reduction Scientific Expert Panel. They provided me with a comprehensive report and advised me on which toxics should be the focus of immediate attention, action and reductions, as well as on many other components of the act.

Cosmetic Pesticides Ban Act

The Cosmetic Pesticides Ban Act amended the Pesticides Act. Now that it has become law after passage by the Ontario legislature, this act fulfils our commitment to ban the sale and use of pesticides for cosmetic purposes in Ontario.

As part of our toxics reduction strategy, this legislation replaces local municipal pesticides by-laws with a single set of clear and understandable rules across the province.

Ontario Regulation 63/09, made under the Pesticides Act, came into effect on April 22, 2009. Many herbicides, fungicides and insecticides for cosmetic use on lawns and gardens are now prohibited. Pesticides are still available for excepted uses. These exceptions include allowing pesticide use for public health or safety reasons (for example, to fight West Nile Virus, kill stinging insects like wasps, or control poison ivy and other plants poisonous to the touch). People can buy, for cosmetic use, biopesticides and certain lower-risk pesticides to control weeds, insects and diseases.

Tips for Water Conservation in Lawns and Gardens

Water wisely: Your lawn needs only 2.5 cm. (1 inch) of water a week.

Use water-wise plants: Native species and adaptive plants, for instance, use less water and are more resistant to local plant diseases and pests.

Add mulch, such as compost, bark, leaves and wood chips to your garden. It helps keep weeds at bay, keeps the earth moist and can feed the soil as it breaks down.

For further tips, visit our website at **www.addituponta rio.ca**.

My ministry is focusing on education and outreach to help make the public aware of the ban, and to increase awareness of greener alternatives and practices for maintaining lawns and gardens that are better for the environment and for the health of Ontario families.

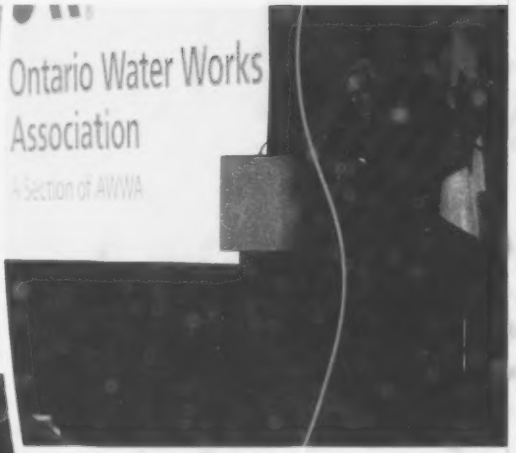
My ministry joined forces with Communities in Bloom to provide a free seminar series. Master gardeners or horticulturalists provided the public with advice and practical tips on greener alternatives for lawns and gardens.

Please go to our website at **www.ontario.ca/pesticideban** for fact sheets that explain the regulation as well as information on rules and exceptions for public health or safety, agriculture, forestry, golf courses and other prescribed uses.

Banning the sale and use of pesticides for cosmetic purposes eliminates the unnecessary risk to our environment, our families, and especially our children. These new rules are tough but workable.

Closing Message

We will need to keep a close eye on our precious water resources to make sure we can all enjoy and benefit from them for generations. Ontario's drinking water will keep earning your confidence, because my ministry will maintain a leadership role in protecting our drinking water. Together with our many partners we will work to put safeguards in place so that Ontario's drinking water is safe, healthy and of high quality, from our source water to our taps.



The Honourable John Gerretsen, Minister of the Environment, speaking at an Ontario Water Works Association meeting.

Glossary

Adverse Water Quality Incident: an event in which a municipal or private drinking water system receives an adverse test result. This can trigger a process of notification and corrective measures.

Benthos: insects, worms, crustaceans and other organisms without a backbone that live in, on, or near the bottom of water bodies.

Conservation Authorities: local watershed management agencies that deliver services and programs that protect and manage water and other natural resources in partnership with government, landowners and other organizations (**www.conservation-ontario.on.ca**).

Corrosion: water flowing through a pipe can wear away at the inner surface of the pipe and dissolve some of the metal making up the pipe. This dissolving of the pipe's inner surface is called corrosion.

Contaminant: any solid, liquid, gas, odour, heat, sound, vibration, radiation or combination of any of these resulting directly or indirectly from human activities that cause or may cause an adverse effect.

Drinking Water Works Permit: permit to establish or alter a municipal residential drinking water system.

Environmental Bill of Rights: a statute of Ontario that provides a number of legal rights and formal procedures for the public to participate in environmental decision making.

Financial Plan: in order to receive a municipal drinking water licence, a municipal residential drinking water system will need to have a financial plan as required under the Financial Plans Regulation (O. Reg. 453/07).

Groundwater: the supply of fresh water found beneath the earth's surface, usually in aquifers that supply wells and springs.

Haloacetic Acids (HAAs): are a by-product of the process used to disinfect drinking water. They are formed when chlorine reacts with natural organic matter in the water. HAAs typically have an element such as chlorine or bromine present in their makeup.

Microorganism: an organism so small that it cannot be seen without a microscope, including bacteria, protozoa, fungi, viruses and algae.

Municipal Residential Drinking Water Systems: municipally-owned systems that serve more than five private residences, as well as systems under contract with a municipality to supply drinking water to more than five private residences.

Non-Municipal Year-Round Residential Systems: non-municipal drinking water systems that serve a major residential development (more than five private residences) or a trailer park or campground that has more than five service connections.

Ontario Drinking Water Quality Standards: regulated standards (O.Reg. 169/03, Ontario Drinking Water Quality Standards made under the Safe Drinking Water Act) for microbiological, chemical and radiological parameters that, when present above certain concentrations in drinking water, have known or suspected adverse health effects and require corrective action.

Operational Plan: a document based on the requirements of the Drinking Water Quality Management Standard. The plan will document the owner and operating authority's quality management system.

Organism: an individual form of life that includes bacteria, protozoa, fungi, viruses and algae.

Pathogen: are organisms that cause disease in another organism.

Source Water: untreated water in streams, rivers, lakes or underground aquifers which is used for the supply of raw water for drinking water systems.

Surface Water: waters (except groundwater) that are on the land surface, such as lakes, ponds, rivers, streams, creeks and marshes.

Systems Serving Designated Facilities: drinking water system that serves designated facilities such as schools (elementary and public), universities, colleges, children and youth care facilities (including day nurseries), health care facilities, children's camps and delivery agent care facilities (including certain hostels).

Notes

Protecting our environment.
Ontario